A1.0-12/09

FIRSTCOM

- FC 138
- FC 418

TWO-WAY RADIO

INSTRUCION MANUAL

THANK YOU!

FIRSTCOM transceiver provides you with reliable, clear and efficient communication service. Our FC 138/418 introduces innovative DSP (Digital Signal Processing) baseband technique to achieve high–fidelity voice processing and encryption. As a compact and fashionable transceiver, FC 138/418 allows you to enjoy instant communication at ease and realize best cost efficiency. It is surely a good choice for communication in Hotels, Amusement buildings, Emporium, Super shopping center, Estate management and other trades.

NOTE:
When programming the transceiver, read the factory initial data firstly, then rewrite the frequency and signaling etc., otherwise errors may occur because of different frequency band etc.

User Manual Applied to: FC 138 VHF FM Transceiver
FC 418 UHF FM Transceiver
Programming Software: PS–FC138&418

SAFETY INFORMATION FOR USER

FIRSTCOM transceiver is excellently designed with advanced technology. Please observe the following precautions to perform your obligation, prevent personal injury and ensure the safety of transceiver usage.

1. Keep the transceiver and accessories away from children.
2. Please do not try to open or modify the transceiver without permission, non–professionals process may also cause damage.
3. Please use assorted battery and charger to avoid damage.
4. Please use assorted antenna to ensure the communication distance.
5. Please do not expose the transceiver to long period of direct sunlight, nor place it close to heat appliances.
6. Please do not put the transceiver in excessively dusty or humid areas.
7. Do not use harsh chemicals, cleaning solvents to clean the transceiver.
8. Do not transmit without antenna.
9. When using this transceiver, we recommend transmitting for 1 minute then receiving for 4 minutes. Continuous transmitting for long time or working in high power will heat the back of the transceiver. Do not place the transceiver's hot back close to any surface of plastic.
10. If any abnormal odor or smoke detected coming from the transceiver, turn off the power and take off the battery pack and its case. Then contact local FIRSTCOM dealers.

NOTICE

All tips as above also apply to the standard parts of FIRSTCOM transceiver. If any spare parts fail to work, please contact local FIRSTCOM dealers in time. If users use spare parts from other suppliers instead of FIRSTCOM, the safety and performance of the transceiver can't be guaranteed.

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Carefully unpack the transceiver. We recommend you identify the items listed in the table as bellows before discarding the packing material. If any items are missing or have been damaged during shipment, please contact local dealers immediately.

Supplied Accessories

Item	Number	Quantity
Antenna	QA07V (136–174MHz)	1
	QA07U (400–480MHz) etc	
Li–ion Battery (1700 mAh)	FB–33L	1
Battery Charger	QBC–33L	1
AC Adaptor	QPS–05	1
Belt Clip	BC06	1
Instruction Manual		1

◦ STANDARD ACCESSORIES/OPTIONAL ACCESSORIES

Standard Accessories

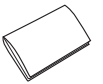
Antenna *1
QA07V(136~174MHz)
QA07U(400~480MHz) etc

Li–ion Battery
(1700mAh)
FB-33L

Charger
QBC-33L

AC Adaptor
(12V/500mA)
QPS-05

Belt Clip
(including screws)
BC06

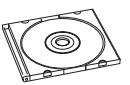


Instruction
Manual

***1.Note: For frequency band of antenna, please refer to label indicated in the bottom of the antenna.**
***2.Note:Car Charger should be workable with QBC–33L charger.**

Additional Accessories

USB Programming
Cable PC03



Programming
Software
PS–FC138&418

Earphone
HS03

Hand Strap
GS01

Backup Li–ion Battery
Pack (2200mAh)
QB–34L

Car Charger
CPL–02

○ OPERATION MODE (AMATEUR TRANSCEIVER OR PROFESSIONAL TRANSCEIVER)

According to practical application,you can set the radio operates as Amateur Transceiver or Professional Transceiver. There are also 3 levels operation menu to set functions as per you need. It is easy and convenient.

1.Operation Mode:

A. **By programming software:**In PC software's "General Setting"menu ,choose "Display Mode" to select Amateur Transceiver mode or Professional Transceiver mode.

B. **Manual setup**:Please refer to "Display Mode" in Page 43.

2.Amateur Transceiver Mode: Except setting as CH mode, others considered as Amateur transceiver mode. Under this mode,press ESC/M key to switch between Channel mode and VFO.

A.**Frequency + Channel number mode:** At this mode, When set display as"FREQ",it enters into Frequency+Channel number mode, new setting of channel operation and shortcut operation can be temporarily used by user. Once the radio is turned off or switched to another channel, the temporary setting will be erased and back to initial settings.**(As pic 1)**

B.**Channel+Name Tag Mode:** When set display as "NAME",it enters into Channel +Name Tag Mode. At this mode, it will display corresponding channel name when the current channel is edited with name. Otherwise, it will display frequency + channel number. Its operations are the same as frequency + channel mode.**(As pic 2)**

(Pic 1)

(Pic 2)

(Pic 3)

(Pic 4)

◦ WORKING MODE (AMATEUR TRANSCEIVER OR PROFESSIONAL TRANSCEIVER)

C.**VFO Mode**（**Frequency mode):** This mode shows only frequency on the display. Shortcut operation and Channel setting will be changed & stored as the latest value permanently.Once the radio is turned off or changed to new VFO frequency, the value is remained until next change.**(As pic 3)**

3.Professional Transceiver Mode: When set display mode as "CH",it enters into Professional Transceiver mode.At this mode,except scan,talk around/frequency reverse,DTMF encode or editing,BEEP on/off and keypad lock,other functions should be set by PC software **(As pic 4)**.

Note:If transceiver programmed transceiver as professional mode and locked,you can't return to amateur transceiver mode by manual operation from Background operations setting.

4.Under every mode, background operations can be changed and saved.

◦ FIRST LEVEL MENU:SHORTCUT OPERATIONS

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Function	Setup Entry	Display	Parameter Instruction	Page
FM Radio On/Off	FUNC → 1 FM		FM Radio	27
Beep Setup	FUNC → 2 BEEP		Beep ON/OFF	27
CTCSS/DCS Scan	FUNC → 3 TSCA		CTCSS Scan	28
CTCSS/DCS Scan	FUNC → 3 TSCA		DCS Scan	28
Offset Frequency Direction Setup	FUNC → 4 +/-		(+):Transmitting frequency higher than receiving frequency	28
Offset Frequency Direction Setup	FUNC → 4 +/-		(–):Transmitting frequency lower than receiving frequency	29
Scan	FUNC → 5 SCAN		Channel or Frequency Scan	29
Add/delete scan list	FUNC → 6 SKIP		A: current channel is on the scan list	30
Priority Scan	FUNC → 7 PRI		PRI: Check priority channel one time when scan each 10 channels	30
TX Power Selection	FUNC → 9 H/LO		"L" disappears: High Power 4w	30
TX Power Selection	FUNC → 9 H/LO		L: Low Power 1 W	30
Frequency Reverse / Talk Around	FUNC → * T/R		R: Frequency Reverse	32
Frequency Reverse / Talk Around	FUNC → * T/R		T: Talk Around	32
DTMF Code Enquiry	FUNC → 0 DTMF		Displaying "---" when no data Displaying data when being with data	31
Keypad Lock	FUNC → # ENT		All keys locked, except PTT/PF1/ PF2	32

◦ SECOND LEVEL MENU: CHANNEL OPERATIONS

Function	Setup Entry	Function Option	Display
CTCSS/DCS Decode Setup	FUNC → 8 SET	▲/▼	R-CDC 1
CTCSS/DCS Encode Setup	FUNC → 8 SET	▲/▼	T-CDC 2
CTCSS/DCS Encode/Decode Synchronous Setup	FUNC → 8 SET	▲/▼	C-CDC 3
Offset Frequency	FUNC → 8 SET	▲/▼	OFFSET 4
Wide/ Narrow Band Selection	FUNC → 8 SET	▲/▼	W/N 5
Frequency Reverse/Talk Around	FUNC → 8 SET	▲/▼	REV/TA 6
Busy Channel Lockout	FUNC → 8 SET	▲/▼	BUSY 7
PTT ID Setup	FUNC → 8 SET	▲/▼	PTT-ID 8
TX Off Function	FUNC → 8 SET	▲/▼	TX-TMO 9

◦ SECOND LEVEL MENU: CHANNEL OPERATIONS

Parameter Adjustment	Parameter Instruction	Confirm to back	Page
Press FUNC Key to move cursor to the value of menu, Press T/RM Key to choose CTCSS/DCS/OFF,Press ▲/▼ Key to choose the value you want,Press R/DN Key to choose correct DCS inverted and positive code.	CTCSS(50 Groups in total): 67Hz–254.1Hz DCS(232Groups in total): 017N–765I	ESC/M / #ENT	34
Press FUNC Key to move cursor to the value of menu, Press T/RM Key to choose CTCSS/DCS/OFF,Press ▲/▼ Key to choose the value you want,Press R/DN Key to choose correct DCS inverted and positive code.	CTCSS(50 Groups in total): 67Hz–254.1Hz DCS(232Groups in total): 017N–765I	ESC/M / #ENT	35
Press FUNC Key to move cursor to the value of menu, Press T/RM Key to choose CTCSS/DCS/OFF,Press ▲/▼ Key to choose the value you want, Press R/DN Key to choose correct DCS inverted and positive code.	CTCSS(50 Groups in total): 67Hz–254.1Hz DCS(232Groups in total): 017N–765I	ESC/M / #ENT	36
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ Key to choose the value you want.	0–70Mhz optional	ESC/M / #ENT	36
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ Key to choose the value you want.	Wide band: 25K Narrow band: 12.5K	ESC/M / #ENT	36
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ Key to choose the value you want.	REV: Frequency Reverse TA: Talk Around	ESC/M / #ENT	37

◦ SECOND LEVEL MENU: CHANNEL OPERATIONS

Press FUNC Key to move cursor to the value of menu, Press ▲/▼ Key to choose the value you want.	OFF: Off BCL: Prohibit transmitting when receiving the matched carrier wave BTL: Prohibit transmitting when receiving matched carrier wave but with unmatched signaling.	ESC/M / # DIR	38
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ Key to choose the value you want.	OFF: Off BOT: Press PTT key to transmit DTMF code EOT: Release PTT key to transmit DTMF code BOTH: Press and Release PTT key can both transmit DTMF code	ESC/M / # DIR	38
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ Key to choose the value you want.	ON: Enable TX Off function OFF: Disable TX Off function	ESC/M / # DIR	39

◦ THIRD LEVEL MENU:BACKGROUND OPERATIONS

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Function	Menu Entry	Function Option	Display
Time–Out Timer (TOT)	Press PF2 and hold this key for 3 seconds	▲/▼	TOT 1
Voice Operated Transmission (VOX) Setup	Press PF2 and hold this key for 3 seconds	▲/▼	VOX 2
Voice Operated Transmission (VOX) Delay	Press PF2 and hold this key for 3 seconds	▲/▼	VOXDEY 3
Voice Operated Transmission (VOX) Beep	Press PF2 and hold this key for 3 seconds	▲/▼	VOXTON 4
Frequency Step Setup	Press PF2 and hold this key for 3 seconds	▲/▼	STEP 5
Squelch level Setup	Press PF2 and hold this key for 3 seconds	▲/▼	SQL 6
Battery Save Setup	Press PF2 and hold this key for 3 seconds	▲/▼	SAVE 7
LCD Backlight Setup	Press PF2 and hold this key for 3 seconds	▲/▼	LIGHT 8
LCD Backlight Color	Press PF2 and hold this key for 3 seconds	▲/▼	COLOR 9
Scan Dwell Time Setup	Press PF2 and hold this key for 3 seconds	▲/▼	SCANTM 10
Display Mode Setup	Press PF2 and hold this key for 3 seconds	▲/▼	DSP 11
DTMF Transmitting Time Setup	Press PF2 and hold this key for 3 seconds	▲/▼	DTMFSD 12
Priority Channel Setup	Press PF2 and hold this key for 3 seconds	▲/▼	PRI-CH 13
Current Battery Voltage Enquiry	Press PF2 and hold this key for 3 seconds	▲/▼	V-BATT 14
Resume Factory Default	Press PF2 and hold this key for 3 seconds	▲/▼	RESET 15

◦ THIRD LEVEL MENU:BACKGROUND OPERATIONS

Parameter Adjustment	Parameter Instruction	Confirm to back	Page
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	15S–600S to be optional OFF: TOT Off	[ESC/M] / [# ENT]	41
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	1–9 Level, 9 levels of VOX in total OFF: VOX OFF	[ESC/M] / [# ENT]	42
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	0.5S–5S, 10 levels of delay time to choose	[ESC/M] / [# ENT]	42
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	ON: Enable VOX Frequency OFF: Disable VOX Frequency	[ESC/M] / [# ENT]	43
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	Channel Step: 5K/ 6.25K/ 10K/ 12.5K/ 15K/ 20k/ 25K/ 30k/ 50K	[ESC/M] / [# ENT]	43
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	0–9: 9 levels of squelch in total	[ESC/M] / [# ENT]	44
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	ON: Open save function OFF: Disable save battery function	[ESC/M] / [# ENT]	45
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	OFF: Permanent OFF ON: Permanent ON AUTO: Backlight remains for a while then quenches	[ESC/M] / [# ENT]	45
Press [FUNC] Key to move cursor to the value of menu, Press [▲]/[▼] key to choose the value you want	RED: RED backlight ORG: Orange backlight GREEN: Green backlight	[ESC/M] / [# ENT]	46

◦ THIRD LEVEL MENU:BACKGROUND OPERATIONS

Press FUNC Key to move cursor to the value of menu, Press ▲/▼ key to choose the value you want	It can be optional that start scanning after dwelling 5S/10S/15S	ESC/M / # EXIT	46
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ key to choose the value you want	FREQ: For Amateur Mobile Transceiver CH: For Professional Mobile Transceiver NAME: For Amateur Mobile Transceiver	ESC/M / # EXIT	47
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ key to choose the value you want	It can be setup as: 50MS, 100MS, 150MS, 200MS, 250MS,300MS, 350MS, 400MS, 450MS, 500MS	ESC/M / # EXIT	48
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ key to choose the value you want	OFF: Disable Priority Channel 1–128, 128 channels can be optional	ESC/M / # EXIT	49
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ key to choose the value you want	Display current battery voltage	ESC/M / # EXIT	49
Press FUNC Key to move cursor to the value of menu, Press ▲/▼ key to choose the value you want	FACT? : Resume Factory Default INIT? : Resume General Setting OFF: No Operation	ESC/M / # EXIT	50

◦ BATTERY INFORMATION

Charging the Battery Pack

The battery pack is not charged at the factory; please charge it before use.Charging the battery pack for the first time after purchase or extended storage (more than 2 moths) may not bring the battery pack to its normal operating capacity. After fully charging/ discharging cycle for two or three times, the operating capacity will reach its best performance. The battery pack life is over when its operating time decreases even though it is fully and correctly charged. Change a new battery pack.

Charger Applied

Please use the specific charger appointed by our company. Other models may cause explosion and personal injury. After installing the battery pack, if the radio displays low battery with red flashing lamp or voice prompt, please charge the battery.

NOTES

▼ Do not short the battery terminals or throw the battery into fire. Never attempt to remove the casing from the battery pack. We bear no responsibility on any results caused by modifying the battery freely without permission of our factory.

▼ The ambient temperature should be between 5℃ and 40℃ while charging is in progress. Charging outside this range may not fully charge the battery.

▼ Always switch OFF the transceiver equipped with a battery pack before charging. Otherwise, it will interfere with correct charging.

▼ To avoid interfering the charging, please do not cut off the power or take out the battery during charging.

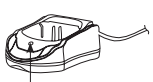
▼Do not recharge the battery pack if it is already fully charged. This may shorten the life of the battery pack or damage the battery pack.
▼Do not charge the battery or transceiver if it is damp. Dry it before charging to avoid danger.

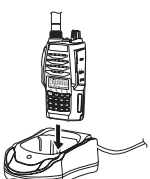
WARNING:
When keys, ornamental chain or other electric metals contact with the battery terminal, the battery may cause damage or hurt bodies. If the battery terminal short circuit it will generate a lot of heat, please be careful when you carry or use the battery, please put battery or radio into insulated container. Do not put it into metal container.

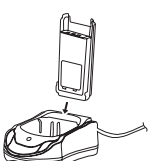
How to charge

You can charge the battery or transceiver separately.

1. Plug the AC adaptor into the AC outlet, and then plug the cable of the AC adaptor into the DC jack located on the back of the Charger.
Charging indicator–––Green


Working Indicator
Charging Indicator


Transceiver Charge


Battery Charge

◦ BATTERY INFORMATION

2. Plug the battery or transceiver into the charger.
A. Make sure that the battery is well connected with charging connectors.
B. Charging indicator–––Red

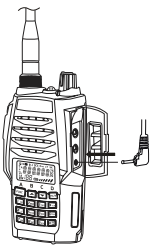
3. Fully charged. Charging indicator––Green

Note:
It takes approximately 4 hours to fully charge the battery. But, the actual charging time depends on the dump battery. After fully charged, please remember to remove the battery or transceiver out of charger. Over charging will shorten the battery life and reduce its performance.

Emergent Charging

Connect the transceiver directly with adaptor or car charger to charge.

Note:Please power off the transceiver before charging the transceiver in this way. Also, it takes longer time (totally 12hours) to fully charge the transceiver in this way.



How to Store the Battery

1. If the battery needs to be stored, keep it in status of 50% discharged.
2. It should be kept in low temperature and dry environment.
3. Keep it away from hot places and direct sunlight.

◦ BATTERY INFORMATION

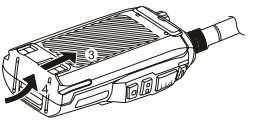
WARNING:

▼ Do not short circuit battery terminals.
▼ Never attempt to remove the casing from the battery pack.
▼ Never assemble the battery in dangerous surroundings, spark may cause explosion.
▼ Do not put the battery in hot environment or throw it into fire, it may cause explosion.

Installing / Removing the Battery

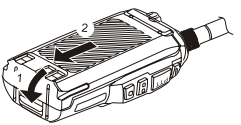
■ Installing the battery:

Match the battery pack with the corresponding guides on the back of the transceiver, and push it upwards till it is fully locked by the battery latch.



■ Removing the battery pack

Slide up the battery latch and remove the pack away from the transceiver.



Installing / Removing the Antenna

■ **Installing the Antenna:**

Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.

■ **Removing the Antenna:**

Turn the antenna anticlockwise to remove it.

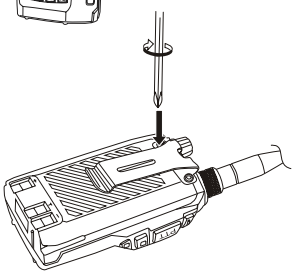
Installing / Removing the Belt Clip

■ **Installing the Belt Clip:**

Place the belt clip to the corresponding grooves on the back of the transceiver, and then clockwise screw it.

■ **Removing the Belt Clip:**

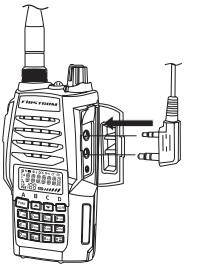
Anticlockwise turn the screws to remove the belt clip



Installing the Additional Speaker/ Microphone (Optional)

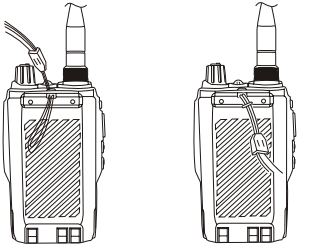
Unveil the MIC–SP jack cover and then insert the Speaker/Microphone plug into MIC–SP jack.

Note: The transceiver is not completely waterproof while using the Speaker/ Microphone.



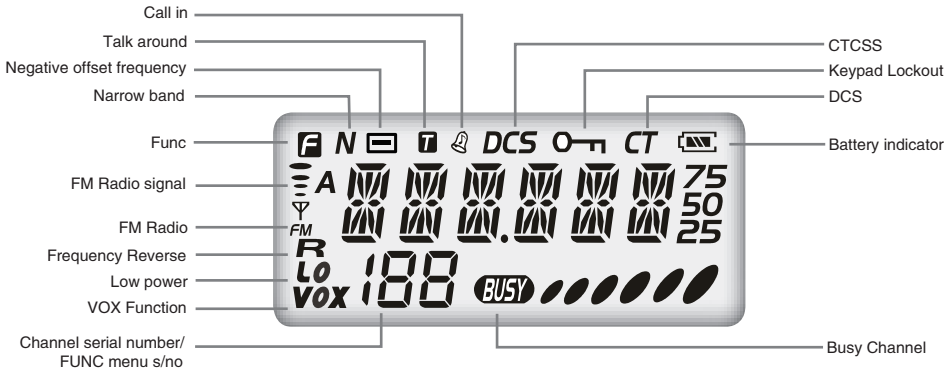
Installing/ Removing the Hand Strap (Optional)

Slide the loop of the hand strap through the eyelet on the upper rear of the transceiver; then pull the entire hand strap through the loop to secure the hands strap in place and lastly tighten the hands strap.



LCD Display

On LCD display screen, you will see various icons which stand for the selected functions and sometimes you may forget the meaning of them. Here you will find the following table extremely useful.



NOTE:

Battery capacity indicator(full)

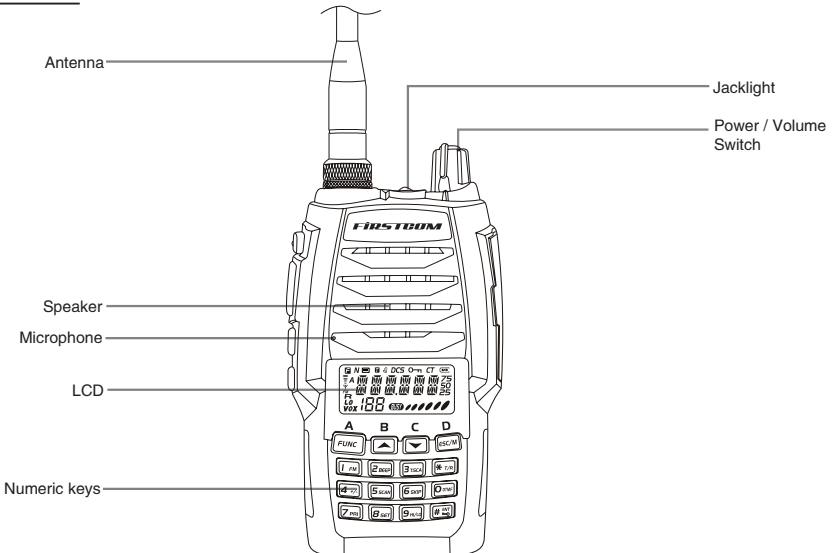
Battery capacity remnant

No power,replace battery pack or charge battery

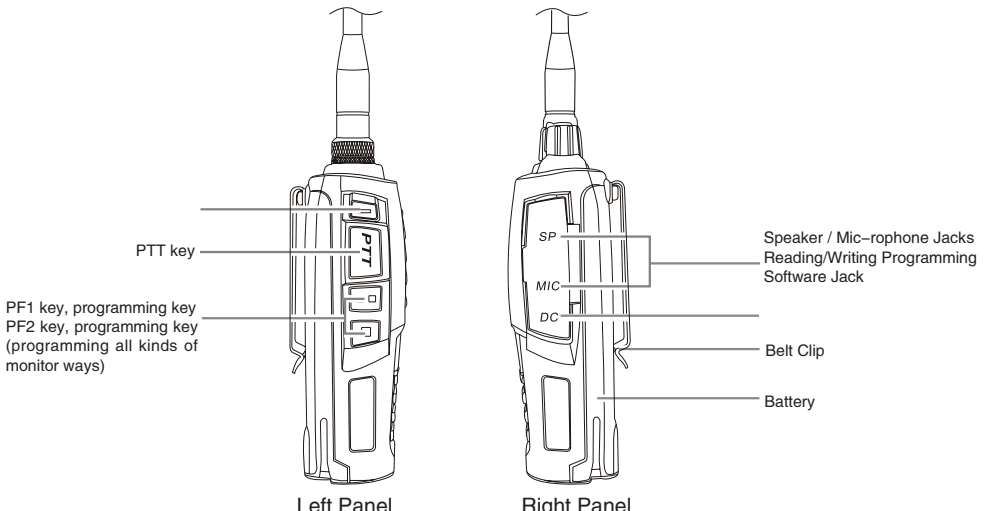
Real time display receiving signal strength/Power Indicator

◦ GETTING ACQUAINTED

Front Panel



Side Panel


PTT key
PF1 key, programming key
PF2 key, programming key
(programming all kinds of
monitor ways)
PTT
SP
MIC
DC
Speaker / Mic–rophone Jacks
Reading/Writing Programming
Software Jack
Belt Clip
Battery
Left Panel
Right Panel

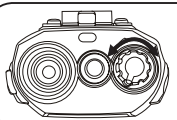
◦ BASIC OPERATIONS

Turn the Radio On & OFF

Under power–off state, please turn [POWER]/ [VOLUME] clockwise to turn on the transceiver.

Under power–on state, please turn [POWER]/ [VOLUME] anticlockwise to turn off the transceiver.

Adjusting Volume



Under power–on state, turn [POWER] / [VOLUME] to adjust volume. Clockwise–up, anticlockwise –down.
When adjusting the volume, press and hold side key PF2 to monitor current volume. (Refer to the function setup of side PF2 key)

NOTE:
Press the [PF2] side key programmed as Squelch Off Momentary to monitor the background noise. Turn [POWER]/ [VOLUME] to control the volume.The volume you need can be adjusted more correctly when communicating with the other party.

Work mode switch

Under standby state, press [ESC/M] key to switch between VFO mode and Channel mode.

Channel Selection

When the radio is under Channel mode or FM channel, press [▲]/[▼] key to select desired channel. Press [▲] to upward the channel and [▼] to downward it.

Note:If there is blank channel between two channels, the radio will skip it and get to next channel.

Frequency adjust

Under VFO mode, press [▲]/[▼] key to set desired frequency. Press [▲] key to upward to increase the frequency value and downward to decrease it. Each press add/cut one step value.

Note:Frequency step: 5k, 6.25, 10K, 12.5K, 15K, 20K, 25K, 30K, 50K, 9 options in total.

Frequency Input by Keypad

Under VFO mode or FM Scan, users can type frequency freely.

1. If your radio is under Channel mode, press [ESC/M] to switch to VFO mode.

Note:Under channel mode, the channel number is displayed on the lower level of the LCD.

2. Enter the desired frequency.

Note: The transceiver input is limited by the step value and scope of the frequency. If the input frequency is

beyond the frequency range or does not match the frequency step, it is invalid. Under FM radio mode, the input frequency step is 50K.

Channel input by keypad

Under channel mode and FM Channel mode, type number of 3 digits (001–128) to switch to the desired channel. If the input channel is not edited, transceiver would emit error prompt and back to current channel. For example, if you type 001, then it gets channel No.1. You can type 030 to reach channel 30th, and 125 to get to reach channel 125th.

FM scan function

When FM Radio is on, press ▲/▼ key to scan FM Channels. If a certain channel is detected, the frequency will be displayed on the LCD and you can listen to it.

Alarm

Under standby state, press and hold the Alarm key till hearing a "DU" to start Alarm function. Reset the radio to switch off the function.

Note: This function should be enabled via software before use.

Jacklight

Under standby state, press Alarm key to switch on the jacklight. Press it again to switch off.

Squelch off/temporarily squelch off

Set the function key [PF2] as Squelch off or temporarily squelch off via programming software.

1. Squelch off: pressing [PF2], the squelch circuit is not mute and at present you can hear the background noise. Press this key again, the squelch circuit becomes mute.
2. Temporarily squelch off: holding the [PF2], the squelch circuit is not mute and at present you can hear the background noise. Release the key, the squelch circuit becomes mute.

Note: the above two functions should be programmed via software. Factory default: Temporarily squelch off.

Receiving

Once current channel is called, LCD will display the signal strength, and then you can hear other party's calling.

NOTE:You may not receive the calling if you set a high squelch off level of the transceiver.
If current channel has been programmed with signaling, you can only hear the call from a same signaling, other calls can't be heard.

Transmitting

Be sure that the channel you want to use is not in busy state through monitoring for a while by pressing the programmed Squelch off [PF2] key. Under these conditions, press the [PTT] key and speak into microphone. Please keep around 2.5–5cm distance between microphone and your lip. And please speak in normal tone to make the receiver obtain best tone quality.

◦ BASIC OPERATIONS

Note: Holding [PTT], red LED lighting, the transceiver is transmitting. Release the PTT to receive.

Battery Enquiry

Under standby state, pressing [PF1], LCD displays current battery voltage. Press this key again to clear the display.

Work Mode Switch (VFO/Channel mode)

Press [ESC/M] key to switch between VFO frequency mode and Channel mode.

Note: If this channel is blank, this operation is invalid.

Editing Channel

1. Under VFO frequency mode, enter the desired frequency and set other items. Afterwards, press FUNC key and then the left top of the LCD displays F icon. Hold the ESC/M key till the transceiver emits "DU" and LCD displays 1st channel to enter the Channel Setting Save mode.
2. Press ▲/▼ key to select the channel you want to update the settings.
3. Hold ESC/M key till the transceiver emits "DU" to save the settings.

Deleting Channel

Under channel mode, select the channel that you want to delete. Then, press FUNC key to enter FUNC setting with F icon displayed on the LCD. Finally, hold the ESC/M key to delete the channel till the transceiver emits "Du" and skip to other channel.

ON/Off FM Radio

Under standby state, press FUNC key to enter FUNC setting with F icon displayed on the LCD. Then, press 1 FM key and the LCD will display "FM INI" and current FM frequency. Namely, FM Radio is started. At this case, you can operate the FM radio freely. Repeat above operations to turn off FM Radio.

On/Off BEEP Prompt

Under standby state, press FUNC key to enter FUNC setting with F icon displayed on the LCD. Then, press F icon to turn off BEEP prompt. Repeat the above operations to turn on it. We suggest turn on

◦ SHORTCUT OPERATIONS

BEEP for faults detecting and prompt for not proper operation.

CTCSS/DCS Scan

Press [FUNC] key to enter FUNC setting with F icon displayed on top left of the LCD. Then, press [3 DSCA] key to enter CTCSS/DCS scan state. Namely, users can press [▲]/[▼] key to change scan direction. When matching signaling is detected, scan pauses for 15s before continuing scanning. Press any key except [FUNC]、[* V/M]、[# LOCK]key to exit.

Note: This function is invalid when the radio is under Professional Radio Mode or current channel is not setup with CTCSS/DCS signaling.
When the signaling of current channel is setup as CTCSS, the radio scans CTCSS only. Likewise, the radio scans DCS when the signaling is DCS.

Offset Frequency Direction Setup

Under standby state, press [FUNC] key to enter FUNC setting with F icon displayed on the top left of the LCD. Press [4 +/-] key to choose offset frequency direction. Offset frequency directions means:

1. (+) Positive offset: offset transmitting frequency is higher than receiving frequency. When reverse function is enabled, the receiving frequency is higher than transmitting frequency.

2. (–) Minus offset: offset Transmitting frequency is lower than receiving frequency. When reverse function is enabled, the receiving frequency is lower than transmitting frequency.

3. None: shut offset off.

When the main channel is under frequency mode (VFO) or channel mode, press [FUNC] key and [4 W/] key successively to select positive offset, minus offset and offset off (refers to Offset frequency setup)

Note: Under professional radio mode, this function is invalid.

Frequency/Channel Scan

Under relevant mode, after pressing [FUNC] key, the top left corner of LCD displays F icon and then press [5 SCAN] key to begin frequency scan or channel scan.

1. Frequency Scan

When the radio is in VFO mode, frequency scan is valid. This function is to monitor signal of each communicating frequency point when you are setting the "stepping" on the radio. Press any number or [ESC/M] key to exit.

2. Channel Scan

When the radio is in channel mode, users can start this function to monitor signal of all channels. Press any number or [ESC/M] key to exit.

NOTE:

- Frequency scan is of all bands scan. When scanning, it scan up as your STEPPING setting.
- When channel scanning, the skipped channel is not in the line of scan. Scan up as per channel no.. (Please refer to channel scan skip.)
- Frequency / Channel scan can change scan direction by pressing [▼] key or [▼] key. When finding a matching carrier wave and signaling, the transceiver will be stop for 15 seconds and then going on scan. (Please refer to scan setup).

◦ SHORTCUT OPERATIONS

Add/delete scan list

In channel mode, press FUNC key to enter FUNC setting. Then, press 6 SKIP key to add current channel into scan list or delete current channel from the scan list.

1. When "A" is displayed on the LCD, it means that current channel is added into the scan list and will be scanned.
2. When "A" disappears, current channel is deleted from the scan list and won't be scanned.

Note: When editing channels in VFO mode, you can preset the editing channel as on or out of the scan list.

Priority Scan

Under channel mode, after pressing FUNC key, the top left corner of LCD displays ✉ and then press 7 PRI key to enter priority scan. Under priority scan state, it tests priority channel once scanning per 10 channels. When the priority channel receives a matching signaling, transceiver will stop scanning until current signal disappear (Please refer to scan setup.).

NOTE: If you want to have this function available, you should set priority channel, otherwise, this operation will be only as general channel scan. Under frequency mode (VFO) , this function is unavailable. (Please refer to priority channel setup.)

TX Power Selection

After pressing A FUNC key, the top left corner of LCD displays ✉ and then 9 HI/LO key to choose High power / Middle power / Low power.

When the bottom left corner of screen displays 'H' , it means that you choose TX high power.

When the bottom left corner of screen does not displays 'H' character or 'L' character, it means that you choose TX middle power.

When the bottom left corner of screen displays 'L' character, it means that you choose TX low power.

DTMF Code Enquiry and Setup

After pressing A FUNC key , the top left corner of LCD displays ✉ and then press 0 DTMF key to show the DTMF data of current groups (16 groups in total).

1. Press R ▲ key or ▼ key to choose the desired group and DTMF data. If this group don't edit DTMF data, it will display current group number and "__" .
2. When current group display "__" , pressing A FUNC key, the top left corner of LCD displays ✉ After pressing and holding 0 DTMF key for 2 seconds, transceiver voices beeping of "DU" and then comes into DTMF edit state. Now you can enter the DTMF editing data you need by keypad.
3. After finishing setup, press side key [PF2] to make a sound of DTMF dialing, to save and exit.

Transmitting DTMF Signaling

Holding PTT key, users can transmit DTMF Signaling by entering DTMF data on the keypad.

◦ SHORTCUT OPERATIONS

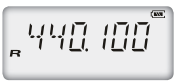
Note: FUNC stands for "A", ▲ for "B", ▼ for "C", ESC/M for "D".

Frequency Reverse/Talk around On/off

After pressing FUNC key, the top left corner of LCD displays and then press T/R key for 1 second to start frequency reverse or talk around. Repeat the above operations to exit.

NOTE: If frequency reverse displayed in current channel, this operation will be enable and disable Frequency Reverse. Or else, it is as enable and disable Talk Around.

When it displays "R" icon on screen, it means that Frequency Reverse is started on current channel. Now the transmitting frequency and receiving frequency are interchanged, namely, receiving frequency switches to transmitting frequency while transmitting frequency switches to receiving frequency. If CTCSS/ DCS signaling are set, it will also interchange.



When it display "T" icon on screen, it means that Talk Around function is started on current channel. Under these conditions, transceiver will transmit as receiving frequency. If CTCSS /DCS signaling is set, it will interchange decoding CTCSS /as encoding.

Keypad Lockout

In order to prevent wrong operation, you can make use of keypad lock function of this transceiver. Under standby state, after pressing FUNC key, the top left

corner of LCD display and then press and hold [# LOCK] key for 2 seconds to start key lock function. Repeat the above operations to cancel key lock function.

NOTE: When keypad is locked, only PTT / PF1 / PF2 / [FUNC] key are available, other keys are unavailable.

◦ CHANNEL OPERATIONS

Channel operation refers to temporarily change on current channel function. Once the radio is turned off or switched to another channel, the temporary change will be erased. Under frequency+channel mode, channel+Name Tag mode or VFO mode, the operating methods are as follows:

1. After pressing [FUNC] key, the top left corner of LCD displays F icon and then press [8 SET] key to enter function menu.

2. Press [▲]/[▼] key to choose the desired function to be set.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired contents to be set.

5. Press [FUNC] to return to upward menu. Press [ESC/M]、[# ENT] key to confirm and exit.

NOTE: When transceiver works at professional transceiver mode, operation as pressing [FUNC] key followed by [8 SET] key is not valid. Under frequency mode (VFO), once the radio is turned off or changed to new VFO frequency, the channel operations setting will be remained until next change.

CTCSS/DCS Decode Setup

If this function is enabled, you shield your radio from other transceivers of same frequency.

1. After pressing [FUNC] key, the top left corner of LCD displays F icon and then press [8 SET] key to enter into function menu.

2. Press [▲]/[▼] key to choose No.1 function item. It shows "R–CDC" on LCD

3. Press [FUNC] key to enter into function menu setup.

4. Press [1 FM] key to choose CTCSS, DCS or OFF. When DCS signaling is selected,

press [* T/I] key to choose DCS positive and inverse code.

5. Press [▲] keyor [▼] key to choose the desired CTCSS / DCS encodes signaling.
6. CTCSS: 67Hz– 254.1Hz, 50 groups in total, Default: 67Hz.
7. DCS: 017N–765I, 232 groups in total. "N" stands for positive code, "I" Stands for reverse code.
8. Press [FUNC] key to back to previous menu. Press [ESC/M] key or [# WX] key to confirm and exit.

CTCSS/DCS Encode Setup

1. After pressing [FUNC] key, the top left corner of LCD displays F icon and then press [8 SET] key to enter into function menu.
2. Press [▲]/[▼] key to choose No.2 function item. It shows "T–CDC" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [1 FM] key to choose CTCSS, DCS or OFF. When DCS signaling is selected, press [* T/I] key to choose DCS positive or inverse code.
5. Press [▲] keyor [▼] key to choose the desired CTCSS / DCS encode signaling.
6. CTCSS: 67Hz– 254.1Hz, 50 groups in total
7. DCS: 017N–765I, 232 groups in total. "N" stands for positive code, "I" stands for inverse code.
8. Press [FUNC] key to return back to previous menu. Press [ESC/M] key or [# WX] key to confirm and exit.

◦ CHANNEL OPERATIONS

CTCSS/DCS Encode/Decode Synchronous Setup

It means that users can synchronize the CTCSS/DCS decode and encode. Also, users can adjust them simultaneously.

1. After pressing [FUNC] key, the top left corner of LCD displays F icon and then press [8 SET] key to enter into function menu.
2. Press [▲]/[▼] to choose No. 3 function item. It shows "C–CDC" on LCD.
3. Press [FUNC] to enter into function menu setup.
4. Press [1 FM] key to choose CTCSS, DCS or OFF. When DCS signaling is selected, press [* T/N] key to choose DCS positive or inverse code.
5. Press [▲] keyor [▼] key to choose the desired CTCSS / DCS encode signaling.
6. CTCSS: 67Hz– 254.1Hz, 50 groups in total
7. DCS: 017N–765I, 232 groups in total. "N" stands for positive code, "I" stands for reverse code.
8. Press [FUNC] key to back to previous menu, press [ESC/M] key or [# LOCK] key to confirm and exit.

Offset Frequency Setup

This function works through repeater. Namely, repeater receives accessing signal by one kind of frequency and then transmits in the other kind of frequency. The offset between these two frequencies is called offset frequency.

1. After pressing [FUNC] key, the top left corner of LCD displays F icon and then press [8 SET] key to enter into

channel function menu.

2. Press [▲]/[▼] key to choose No.4 function item. It shows "OFFSET" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [▲] key or [▼] key to choose the offset frequency you want.
5. The frequency range is 00–70MHz.
6. Press [FUNC] key to back to previous menu and [ESC/M] key or [# ENT] key to confirm and exit.

Wide/narrow band setup

On the basis of national conditions, users can set channel spacing as 25K (wide band) or 12.5K (narrow band) to communicate.

1. After press [FUNC] key, the top left corner of LCD displays F icon and then press [3 SET] key to enter into channel function menu.
2. Press [▲]/[▼] key to select NO.5 function item. It shows" W/N" ;
3. Press [FUNC] key to enter into function menu setup
4. Press [▲] key or [▼] key to select desired band width.
   W25K: wide band. **N12.5:** Narrow band.
5. Press [FUNC] key to back to previous menu, and [ESC/M] key or [# ENT] key to confirm and exit.

◦ CHANNEL OPERATIONS

Frequency Reverse/ Talk around option

1. After pressing [FUNC] key, the top left corner of LCD displays F icon and then press [8 SET] to enter into function menu.

2. Press [▲]/[▼] key to choose No.6 function item. It shows "REV/TA" on LCD.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key or key to choose the desired setup.

REV: The frequency reverse function is selected.

TA: The talk around function is selected.

6. Press [FUNC] key to back to previous menu and [ESC/M] key or [# OUT] key to confirm and exit.

NOTE: After relevant function is selected on current channel, under standby mode, users can press [FUNC] key and then hold [* TONE] key to start chosen function.

Busy Channel Lockout

BCLO is to disable transmitting while RX signal is received. Once the channel is busy and you press PTT, the radio will beep as warning and get back to receiving.

1. After pressing [FUNC] key, the top left corner of LCD displays F icon and then press [8 SET] key to enter into function menu.

2. Press [▲]/[▼] key to choose No.7 function item. It shows "BUSY" on LCD.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired setup.

BCL: Enable BCL, carrier wave lockout, transmitting is prohibited when current channel receives a matching carrier wave;

BTL: Enable BTL, transmitting is prohibited when current channel receives a matching carrier wave with dis–matching CTCSS/DCS.

OFF: Busy Channel Lockout is turned off.

5. Press FUNC key to back to previous menu and ESC/M key or # key to confirm and exit.

PTT ID Setup

1. After pressing FUNC key, the top left corner of LCD displays F icon and then press 9 SCR key to enter into function menu.
2. Press ▲/▼ key to choose No.8 function item. It shows "PTT–ID" on LCD.
3. Press FUNC key to enter into function menu setup.
4. Press ▲ key or ▼ key to choose the desired setup

   BOT: Start, press PTT key to send a series of DTMF code.

   EOT: End, release PTT key to send a series of DTMF code.

   BOTH: Start and End;

   OFF: PTT ID is turned off.
5. Press FUNC key to back to previous menu and ESC/M key or # key to confirm and exit.

◦ CHANNEL OPERATIONS

TX OFF

After starting this function, [PTT] key is unavailable. Current channel of transceiver is working under receiving mode.

1. After pressing [FUNC] key, the top left corner of LCD displays F icon. And then press [8 SCR] key to enter into function menu.

2. Press [▲]/[▼] key to choose No.9 function item. It shows "TX–IHB" on LCD.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired setup.

ON: TX Off is enabled.

OFF: TX Off is disabled.

5. Press [FUNC] key to back to previous menu and [ESC/M] key or [# ENT] key to confirm and exit.

◦ BACKGROUND OPERATIONS

Under any mode, the background operations will be changed & stored as the latest value permanently, until next change, operations as followings:

1. Press and hold [PF2] key to turn on transceiver. And keep pressing [PF2] key for 3 seconds to enter into background operations.
2. Press [▲]/[▼] key to choose the menu item you want to set.
3. Press [FUNC] key to enter menu setup.
4. Press [▲] key or [▼] key to choose the desired setup.
5. Press [FUNC] to back to previous menu and [ESC/M] key or [# OK] key to confirm and exit.

TOT Timer Setup

The purpose of Time–out–timer is to restrict transceiver for continuous long–term transmission. When the continuous transmission time is beyond the due time, transceiver is forced to stop transmitting and make a sound of beeping.

1. Press and hold [PF2] key to turn on transceiver. And keep pressing [PF2] key for 3 seconds to enter into background operations.
2. Press [▲]/[▼] key to choose No.1 function item. It shows "TOT" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [▲] key or [▼] key or key to set desired TOT time;

   15–600 seconds, 10 minutes of TOT is to be optional, per level interval of 15 seconds.

5. Press [FUNC] key to back to previous menu. Press [ESC/M] key or [# LOCK] key to confirm and exit.

VOX Setup

When this function is enabled, you can begin transmitting by fitted high voice, no needing to press the [PTT] key.If you want to make use of this function, you should insert the earpiece fitted with the transceiver.

1. Press and hold [PF2] key till the transceiver emits "DU" , and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.2 function item. It shows "VOX" on LCD.
3. Press [FUNC] key to enter menu setup.
4. Press [▲] key or [▼] key to choose the desired VOX level.
5. Press [FUNC] to back to previous menu and [ESC/M] key or [# LOCK] key to confirm and exit.

VOX Delay Setup

The fact that the transceiver sends the calling by VOX and instantly returns to receiving mode might result in residual information loss. To avoid this loss, you can set suitable delay time.

1. Press and hold [PF2] key till the transceiver emits "DU" , and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.3 function item. It shows "VOXDEY" on LCD.
3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired setup.
   0.5S–5S, 10 levels of delay time in total to choose, per level interval of 0.5S.
5. Press [FUNC] to back to previous menu and [ESC/M] key or [#] key to confirm and exit.

VOX Beep Setup

After enabling this function, beginning transmitting by VOX, the transceiver will voice beeping.

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.4 function item. It shows "VOXTON" on LCD.
3. Press [FUNC] key to enter menu setup.
4. Press [▲] key or [▼] key to choose the desired setup.
   ON: VOX beeping is enabled.
   OFF: VOX beeping is disabled.
5. Press [FUNC] to back to previous menu and [ESC/M] key or [#] key or key to confirm and exit.

Frequency Step Size Setup

This function is valid only when the radio is in frequency mode. Frequency input and frequency scan are both restricted by stepping.

◦ BACKGROUND OPERATIONS

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.

2. Press [▲]/[▼] key to choose No.5 function item. It shows "STEP" on LCD.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired setup.

Stepping: 5k/ 6.25K/ 10K / 12.5K/ 15K/ 20K/ 25K 30K/ 50K

5. Press [FUNC] to back to previous menu and [ESC/M] key or [# OUT] key to confirm and exit.

Squelch Level Setup

This function is used to setup the receiving signal intensity. If the receiving signal intensity reaches a certain level, you can hear the other party calling, otherwise transceiver will remain mute.

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.

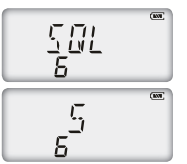
2. Press [▲]/[▼] key to choose No.6 function item. It shows "SQL" on LCD.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired setup.

Off––9: 10 levels of squelch in total, "off" as min setup value (Normally open)

5. Press [FUNC] to back to previous menu and [ESC/M] key or [# OUT] key to confirm and exit.



Battery save Setup

Users can start this function to extend the standby time.

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.7 function item. It shows "SAVE" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [▲] key or [▼] key to choose the desired setup.

   ON: Battery saving is enabled.

   OFF: Battery saving is disabled.
5. Press [FUNC] to back to previous menu and [ESC/M] key or [#EXIT] key to confirm and exit.

LCD Backlight Setup

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.8 function item. It shows "LIGHT" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [▲] key or [▼] key to choose the desired setup.

   AUTO: Automatic, after enabling the backlight, it lights for a while before quench automatically.

   OFF: Normally close

5. Press [FUNC] to back to previous menu and [ESC/M] key or [# ENT] key to confirm and exit.

LCD Backlight Color Setup

There are three kinds of backlight color to be optional.

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.9 function item. It shows "COLOR" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [▲] key or [▼] key to choose the desired setup.

   RED: red backlight

   ORG: orange backlight

   GREEN: green backlight
5. Press [FUNC] to back to previous menu and [ESC/M] key or [# ENT] key to confirm and exit.

Scan Dwell Time Setup

There are three kinds of scan dwell time to be optional.

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.10 function item. It shows "SCANTM" on LCD.
3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired dwell time:

5S: Once the radio receives a matching signal, Scan mode will stop for 5 seconds and then continue scanning.

10S: Once the radio receives a matching signal, Scan mode will stop for 10s and then continue scanning.

5. Press [FUNC] to back to previous menu and [ESC/M] key or [# SCAN] key to confirm and exit.

Display Mode Setup

There are display modes as channel number display, channel frequency+ channel number display and channel name display, 3 modes in total for option.

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.

2. Press [▲]/[▼] key to choose No.11 function item. It shows "DSP" on LCD.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the desired setup.

FREQ: Frequency + Channel number (Amateur transceiver mode) press ==key to switch into VFO mode.

CH: Channel number (Professional transceiver mode).

NAME: Channel name display. When a channel is not named, LCD displayscurrent frequency and channel number. Otherwise, LCD displays channel name. (Amateur transceiver mode).

5. Press [FUNC] to back to previous menu and [ESC/M] key or [# DTMF] key to confirm and exit.

Tone Pulse Frequency Selection

This function is used for starting the repeater activated by Tone Pulse. It needs a certain intensity of Tone Pulse to start repeater under slumber state. In general, as long as the repeater is started,The Tone Pulse is not needed.

1. Press and hold [PF2] key to turn on transceiver. And keep pressing [PF2] key for 3 seconds to enter into Model Functions Setting.

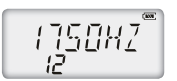
2. Press [▲]/[▼] key to choose No.12 function item. It shows "TBST" on LCD.

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the Tone Pulse frequency you want.

1000Hz: Pilot frequency1000Hz 1450Hz: Pilot frequency 1450Hz

1750Hz: Pilot frequency 1750Hz 2100Hz: Pilot frequency 2100Hz



5. Press [FUNC] key to back to previos menu. Press [ESC/M] key or [# DTMF] key to confirm and exit.

DTMF Transmitting Time

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.

2. Press [▲]/[▼] key to choose No.13 function item. It shows "DTMFSD" on

3. Press [FUNC] key to enter into function menu setup.

4. Press [▲] key or [▼] key to choose the DTMF transmitting time you want.

50MS: each DTMF signal transmits for 50MS and then pause for 50MS before next transmission.
100MS: each DTMF signal transmits for 100MS and then pause for 100MS before next transmission.
150MS: each DTMF signal transmits for 150MS and then pause for 150MS before next transmission.
200MS: each DTMF signal transmits for 200MS and then pause for 200MS before next transmission.
250MS: each DTMF signal transmits for 250MS and then pause for 250MS before next transmission.
300MS: each DTMF signal transmits for 300MS and then pause for 300MS before next transmission.
350MS: each DTMF signal transmits for 350MS and then pause for 350MS before next transmission.
400MS: each DTMF signal transmits for 400MS and then pause for 400MS before next transmission.
450MS: each DTMF signal transmits for 450MS and then pause for 450MS before next transmission.
500MS: each DTMF signal transmits for 500MS and then pause for 500MS before next transmission.

5. Press [FUNC] to back to previous menu and [ESC/M] key or [# ENT] key to confirm and exit.

Priority Channel Setup

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.14 function item. It shows "PRI–CH" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [▲] key or [▼] key to choose the desired priority channel.
5. Press [FUNC] to back to previous menu and [ESC/M] key or [# ENT] key to confirm and exit.

◦ BACKGROUND OPERATIONS

Current Battery Voltage Display

1. Press and hold [PF2] key till the transceiver emits "DU", and then release it to enter into background operation.
2. Press [▲]/[▼] key to choose No.15 function item. It shows "V–BATT" on LCD.
3. Press [FUNC] key to enquiry current battery voltage.
4. LCD display current battery voltage.
5. Press [FUNC] to back to previous menu and [ESC/M] key or [# OK] key to confirm and exit.

Resume Factory Default

Once transceiver works abnormally for wrong operations or wrong programming, users can start this function to resume all functions and channels as Factory Default.

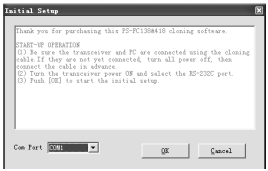
1. Press and hold [PF2] key to turn on transceiver. And keep press [PF2] key till the radio emits "DU" to enter into background operations.
2. Press [▲]/[▼] key to choose No.16 function item. It shows "RESET" on LCD.
3. Press [FUNC] key to enter into function menu setup.
4. Press [▲] key or [▼] key to choose the desired settings.
   OFF: No operation
   FACT?: Resume all settings, including channels and functions setting, to factory default.
   INIT?: Resume all functions settings to factory default.
5. Press [# OK] key to confirm.

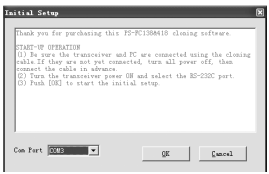
Note: User can have this function hided via programming software.

Programming Software Installing & Starting (THIS INSTRUCTION TAKES WINDOWS XP AS AN EXAMPLE)

FIRSTCOM

1. Double–click "PS–FC138&418 SETUP.EXE", and then install the software as per computer instructions.
2. Click "START" menu, choose "USB To Comport" in the KSP entry from "ALL PROGRAMS" and click it. Please install USB to Comport drive program as computer command.
3. Please plug PC–01 programming cable into USB port in PC device and then connect with transceiver.
4. Double click "PS–FC138&418" shortcut operation or click PS–FC138&418 Start in the PS–FC138&418 menu of ALL PROGRAMS in START MENU. (Refer to picture1)
5. Choose serial port "COM Port" (refer to picture2) as per computer command, then clicks" OK" to start programming software.


Initial Setup
Thank you for purchasing this PS-FC138&418 cloning software.
START-UP OPERATION
(1) Be sure the transceiver and PC are connected using the cloning cable.If they are not yet connected, turn all power off, then connect the cable in advance.
(2) Turn the transceiver power ON and select the RS-232C port.
(3) Push [OK] to start the initial setup.
Com Port
COM1
OK
Cancel


Initial Setup
Thank you for purchasing this PS-FC138&418 cloning software.
START-UP OPERATION
(1) Be sure the transceiver and PC are connected using the cloning cable.If they are not yet connected, turn all power off, then connect the cable in advance.
(2) Turn the transceiver power ON and select the RS-232C port.
(3) Push [OK] to start the initial setup.
Com Port
COM3
OK
Cancel

Note:

In one individual computer, users need to choose different COM Port number when USB cable is connected with different USB port.

To program frequency, please power on the transceiver firstly. Don't power on/off the transceiver when it is connected with computer. Otherwise, the transceiver cannot read or write frequency well. If this condition happens, please firstly close the programming software, disconnect USB Connector (PC03) from computer, then, and connect the USB connector with computer again and select the corresponding COM

○ Programming Software Installing & Starting (THIS INSTRUCTION TAKES WINDOWS XP AS AN EXAMPLE)

Port to start the programming software. So, please power on the transceiver before connecting with the computer. Do not reset the transceiver when the transceiver is connected with the computer.

NOTE:
The programming software of this transceiver is attached with product identifying system. So, when you start programming software at the first time, you should connect the transceiver and then you can run the software, otherwise the software cannot be run.

◦ TECHNICAL SPECIFICATIONS

FIRSTCOM

	General
Frequency Range*	VHF:136–174MHz UHF: 400–480MHz(EX:400–520mhz)
Channel Capacity	128 channels
Channel Spacing	25KHz (Wide Band) 12.5KHz (Narrow Band)
Phase–locked Step	5KHz, 6.25KHz
Operating Voltage	7.4 DC ±20%
Battery Life	More than 12 Hours (1700mAh), by 5–5–90 work cycle
Frequency Stability	±2.5ppm
Operating Temperature	–20~ +55℃
Size	195 × 56 × 30mm (with battery pack, no antenna)
Weight	185 g (with battery pack, no antenna)

Receiving Part		
	Wide band	Narrow band
Sensitivity(12dB SINAD)	≤0.25 μ V	≤0.35 μ V
Adjacent Channel Selectivity	≥60dB	≥60dB
Intermodulation	≥60dB	≥60dB
Spurious Rejection	≥80dB	≥80dB

◦TECHNICAL SPECIFICATIONS

Audio Response	6dB / per interval	6dB / per interval
Hum & Noise	⩾50dB	⩾45dB
Audio Distortion	⩽5%	
Audio Power Output	500mW (at 10%)	

Transmitting Part		
	Wide band	Narrow band
Power Output	4w/1w	
Modulation	16KΦF3E	11KΦF3E
Adjacent Channel	⩾60dB	⩾60dB
Hum & Noise	⩾45dB	⩾40dB
Spurious Emission	⩽ – 36dB	⩽ – 36dB
Audio Response	6dB / per interval	6dB / per interval
Audio Distortion	⩽5%	

Note:No further advice when any necessary amendments are made for technical need,

Problem	Corrective Action
No power	A.The battery pack may be exhausting. Recharge or replace the battery pack. B.The battery pack may not be installed correctly. Remove the battery pack and install it again。 C.The power switch is broken; send it to local dealers to repair. D.Battery touch is broken; send it to local dealers to repair.
Battery power dies shortly after correctly charging.	The battery pack life is finished. Replace the battery pack with a new one.
Transceiver cannot scan	The channels are not in scan list. (Professionals set it.)
All band noisy after programmed or green light always lightens	Turn on squelch when programmed. Non–professionals are advised not to adjust this function.
No sound after using microphone for a while	Earphone jack is broken. (Please contact with local dealers to repair it.)
Communication distance becomes short, and it is low sensitivity	A.Check whether the antenna is in good condition and the antenna base do not come adrift. B.The selected mode frequency is not in accord with local frequency when programming. C.Whether it has set in low power output. (Please contact with local dealers to repair it.)

◦TROUBLE SHOOTING GUIDE

Cannot talk to or hear other members in your group	A. Different frequency or channel, please change it. B. Different CTCSS / DCS please reset it. C. Out of communication range.
Can not power on or frequent power–off	Check whether the battery touch is out of sharp or broken.
The other party gets low or intermittent receiving sound	Check weather the MIC is stoppage. (Otherwise, please contact with local dealers to repair it.)
ntermittent receiving with big noise.	A.Out of communication range or obstruct by tall buildings or in basement and so on. B.450 filter is broken, Please contact with local dealers to repair.
Loudspeaker become lower or with "ka ka" sound after using a certain time	Check whether the loudspeaker net is broken. Iron powder or sundries is in the loudspeaker. (Please contact with local dealers to repair it.)
Receive voice from the other party but can not transmit	Check [PTT] key. (Please contact with local dealers to repair it.)
Receiving indicating lamp (green light) lightens but no sound	A.Low volume, please turn on clockwise. B.Loudspeaker is broken. (Please contact with local dealers to repair it.) C.Earphone jack is broken. (Please contact with local dealers to repair it.) D.Volume switch is broken. (Please contact with local dealers to repair it.)

CTCSS Frequency Chart

1	67.0	11	94.8	21	131.8	31	171.3	41	203.5
2	69.3	12	97.4	22	136.5	32	173.8	42	206.5
3	71.9	13	100.0	23	141.3	33	177.3	43	210.7
4	74.4	14	103.5	24	146.2	34	179.9	44	218.1
5	77.0	15	107.2	25	151.4	35	183.5	45	225.7
6	79.7	16	110.9	26	156.7	36	186.2	46	229.1
7	82.5	17	114.8	27	159.8	37	189.9	47	233.6
8	85.4	18	118.8	28	162.2	38	192.8	48	241.8
9	88.5	19	123.0	29	165.5	39	196.6	49	250.3
10	91.5	20	127.3	30	167.9	40	199.5	50	254.1

◦ ATTACHED CHART

DCS Chart

1	017	18	073	35	165	52	261	69	356	86	464	103	632
2	023	19	074	36	172	53	263	70	364	87	465	104	645
3	025	20	114	37	174	54	265	71	365	88	466	105	654
4	026	21	115	38	205	55	266	72	371	89	503	106	662
5	031	22	116	39	212	56	271	73	411	90	506	107	664
6	032	23	122	40	**217**	57	274	74	412	91	516	108	703
7	036	24	125	41	223	58	**305**	75	413	92	523	109	712
8	043	25	131	42	225	59	306	76	423	93	526	110	723
9	047	26	132	43	226	60	311	77	**425**	94	532	111	731
10	050	27	134	44	243	61	315	78	431	95	**534**	112	732
11	051	28	**135**	45	244	62	325	79	432	96	546	113	734
12	053	29	143	46	245	63	331	80	445	97	565	114	743
13	054	30	145	47	246	64	332	81	446	98	606	115	754
14	**055**	31	152	48	251	65	343	82	452	99	612	116	**765**
15	065	32	155	49	252	66	**345**	83	454	100	624		
16	071	33	156	50	**254**	67	346	84	455	101	627		
17	072	34	162	51	255	68	351	85	462	102	631		

NOTE: N is positive code. ” I” is negative code. There are 232 groups of DCS in total. The overstriking marks are non–standard DCS.